TECHNICAL REVIEW DOCUMENT for OPERATING PERMIT 97OPWE188

to be issued to:

Republic Industries of Colorado Inc. LLC
Front Range Landfill
Weld County
Source ID 1230246

Prepared by Cathy Rhodes May, 2000

I. Purpose

This document will establish the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA and during Public Comment. The conclusions made in this report are based on information provided in the original application submittal of July 10, 1997 and the revised submittal received on September 14, 1999. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

On April 16, 1998 the Colorado Air Quality Control Commission directed the Division to implement new procedures regarding the use of short term emission and production/throughput limits on Construction permits. These procedures are being directly implemented in all operating permits that had not started their Public Comment period as of April 16, 1998 or if specifically requested by the source. All short term emission and production/throughput limits that appeared in the construction permits associated with this facility that are not required by a specific State or Federal standard or by the above referenced Division procedures have been deleted and all annual emission and production/throughput limits converted to a rolling 12 month total. Note that, if applicable, appropriate modeling to demonstrate compliance with the National Ambient Air Quality Standards was conducted as part of the Construction Permit processing procedures. If required by this permit, portable monitoring results and/or EPA reference test method results will be multiplied by 8760 hours for comparison to annual emission limits unless there is a specific condition in the permit restricting hours of operation. (See Section V for specific short term limits removed).

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised

Construction Permit.

II. Source Description

Republic Industries owns 640 acres and operates a 202-acre (approximately 75-acres disturbed) facility permitted disposal footprint known as the Front Range Landfill. This facility is permitted for earth moving and disposal related activities only. The liner system at the landfill consists of three feet of compacted clay in Cell 1. In Cell 2 and beyond the liner system is one to two feet of compacted clay overlain with a 60-mil Geo-membrane. The landfill liner is constructed to meet the EPA subtitle "D" requirements. The facility is currently has a maximum projected disposal rate of 2,500 tons per day, with a projected life of 35 years. Acceptable waste includes: municipal solid waste, construction and demolition debris, and pre-approved non-hazardous special and industrial waste.

Environmental control systems include the following: liner, leachate collection and removal system (LCRS); groundwater monitoring program; landfill gas monitoring probes; Special Waste Acceptance Program; and Household Hazardous Waste Exclusion Program. Front Range Landfill provides a Special Waste Acceptance and Review Program (SWARP) that reviews each waste stream prior to acceptance into the facility. In addition, random reviews of incoming loads at the scale house and working face will ensure that waste is as represented by the generator.

The facility is located in Weld County in the township of Erie. The property is approximately 15 miles north of Denver; west of I-25; north of State Highway 7, on the east side of Weld County Road 5. There are no affected states within 50 miles of the facility. The facility is within 100 kilometers of two Federal Class I designated areas: Rawah Wilderness Area and Rocky Mountain National Park. The pollutants of concern are Volatile Organic Compounds (VOC), Particulate Matter (PM), and Particulate Matter less than 10 microns (PM₁₀). Facility wide potential emissions based on data submitted with the Title V application and actual emissions based on the Air Pollution Emission Notices (APENs) on file with the Division are as follows:

Pollutant	Potential Emissions (tpy)	Actual Emissions (tpy)
VOC	46.7	3.5
PM	223.7	92.5
PM ₁₀	57.2	26.7

This source is considered to be a minor source (Potential to Emit < 250 tpy) for purposes of Prevention of Significant (PSD) regulations as defined in Colorado Regulation No. 3, Part A, Section I.B.58. This facility currently has no applicable hazardous pollutant standards but is subject to Standards of Performance for Municipal Solid Waste Landfills (Colorado Regulation No. 6, Part A, Subpart WWW, 40 CFR § 60.750 through § 60.759).

III. Emission Sources

The following sources are specifically regulated under the terms and conditions of the Operating Permit for this Site:

Unit F001: Fugitive Particulate Emissions

1. Applicable Requirements

The sources of fugitive particulate emissions were first placed into service in November 1991. Fugitive particulate emissions are generated from transfer of material to and from soil storage piles, wind erosion from storage piles, vehicle travel on unpaved roads, waste dumping, and disturbed areas. These sources are permitted under initial approval Colorado Construction Permit 91WE766. The applicable requirements for these sources are the following:

- PM: 223.7 tpy (Colorado Construction Permit 91WE766, Colorado Regulation No. 1, Section III.D.1.c)
- PM₁₀: 57.2 tpy (Colorado Construction Permit 91WE766, Colorado Regulation No. 1, Section III.D.1.c)
- Minimize fugitive particulate emissions (Colorado Construction Permit 91WE766, Colorado Regulation No. 1, Section III.D.1.a)
- No off-property transport (Colorado Construction Permit 91WE766, Colorado Regulation No. 1, Section III.D.1.c)
- 20% Opacity limitation during normal operations (Colorado Construction Permit 91WE766, Colorado Regulation No. 1, Section II.A.1)
- No nuisance emissions (Colorado Construction Permit 91WE766, Colorado Regulation No. 1, Section II.A.1)
- APEN Reporting (Colorado Construction Permit 91WE766, Colorado Regulation No. 3, Part A, Section II)

The emission limitations, no off-property transport, 20% opacity and nuisance emissions limitations identified in Regulation No. 1, Section III.D.1.c are guidelines, not enforceable standards. However, failure to comply with the control plan attached to Construction Permit 91WE766 may result in enforcement action.

The permittee requested the following revision to the Particulate Emissions Control Measures listed in the Construction Permit.

Change from:

Six inches of soil cover or geotextile fabric or equivalent material as an alternative daily cover (ADC) shall be applied following the placement of each refuse lift and at the end of each day. To: Six inches of soil cover or geotextile fabric or equivalent material as an alternative daily cover (ADC) shall be applied at the end of each day.

The Division has determined that this modification does not affect permitted emission estimates.

2. Emission Factors

Fugitive PM and PM₁₀ emissions are subject to APEN reporting requirements but are not subject to annual fees. A revised APEN was submitted with the Title V Operating Permit application for the fugitive particulate emissions. The emission factors included in this section for transfer of material to and from soil storage piles, wind erosion from storage piles, and vehicle travel on unpaved roads were used by the source to determine emissions for the revised APEN. The emissions from waste dumping and disturbed areas were not considered by the source in the Title V Operating Permit application and were calculated by the Division with the approved emission factors described below.

Material Transfer to and from Soil Storage Piles

The source proposed to use emission factors from AP-42 (EPA Compilation of Air Pollutant Emission Factors, January 1995), Section 13.2.4.

PM : 0.01 lb per ton of soil transferred PM_{10} : 0.005 lb per ton of soil transferred

Wind Erosion from Storage Piles

The source proposed to use emission factors for PM from AP-42 (EPA Compilation of Air Pollutant Emission Factors, January 1995), Section 11.9. The PM emission factor was adjusted using the particle size multipliers (k) taken from AP-42 (EPA Compilation of Air Pollutant Emission Factors, January 1996), Section 13.2.2 to determine the PM₁₀ emission factor.

PM : 0.38 ton per acre-yr PM₁₀ : 0.17 ton per acre-yr

Vehicle Travel on Unpaved Roads

The source proposed to use emission factors (lb PM₁₀/Vehicle Miles Traveled) calculated from the predictive emission factor equation reported in AP-42 (EPA Compilation of Air Pollutant Emission Factors, January 1995), Section 13.2.2.

	PM (lb/VMT)	<u>PM₁₀ (lb/VMT)</u>
Waste Haul Truck	1.594	0.717
Private Vehicle	0.112	0.050
18 yd ³ scraper	1.206	0.543
Water Truck	0.303	0.136

In addition, a combined control efficiency of 37.5% is used for gravel and wet suppression control measures.

Excavation and Daily/Periodic Covering

The source proposed to use emission factors (lb/ton material) calculated from the predictive emission factor equation reported in AP-42 (EPA Compilation of Air Pollutant Emission Factors, January 1995), Section 13.2.4.

	PM (lb/ton)	<u>PM₁₀ (lb/VMT)</u>
Excavation	0.098	0.046
Cover	0.098	0.046

Waste Dumping

The Division-approved emission factors for waste dumping are the following:

PM : 0.056 lb per ton of waste accepted PM_{10} : 0.0024 lb per ton of waste accepted

Disturbed Areas

The Division-approved emission factors for disturbed areas are the following:

PM : 3.5 lb per acre of disturbed area PM₁₀ : 1.7 lb per acre of disturbed area

In addition, revegetation and watering (as necessary) provides approximate daily and annual control efficiencies of 25% and 85%, respectively.

3. Monitoring Plan

The fugitive particulate emission sources are subject to the requirements of Colorado Regulation No. 1, Section III.D, which requires existing sources to employ control measures and operating procedures to minimize fugitive particulate emissions using all available practical methods that are technologically feasible and economically reasonable. The source will semi-annually certify that they have complied with the intent of this regulation. Records (i.e. operating procedures and plant policies) of controls used shall be maintained and made available to the Division on request.

A revised APEN must be submitted to the Division as required by Colorado Regulation No. 3, Part A, Section II. C.

4. Compliance Status

A current APEN reporting 1999 emissions for these fugitive sources is on file with the Division.

During the latest inspection of the facility several deficiencies were found with respect to recordkeeping and reporting. The source has modified its recordkeeping methods and is expected to be in compliance with all applicable requirements by the date of issue of the Operating Permit.

Unit P001 - Landfill Gas Emissions

1. Applicable Requirements

This landfill began accepting waste in June 1996. The pollutants of interest resulting from the decomposition of solid waste placed in the landfill are VOC (assumed to be 39% of NMOC). This unit is permitted under initial approval Colorado Construction Permit 91WE766. The applicable requirements for this emission unit are the following:

- VOC: 46.7 tpy (Colorado Construction Permit 91WE766) (includes 5 tpy from petroleum contaminated soils)
- Waste Acceptance Rate Limit: 649,867 tpy (Colorado Construction Permit 91WE766)
- New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills (Colorado Construction Permit 91WE766, Colorado Regulation No. 6, Part A, Subpart WWW)
- General Provisions of NSPS (Colorado Construction Permit 91WE766, Colorado Regulation No. 6, Part A, Subpart A)
- Odor Emission Regulation (Colorado Regulation No. 2)
- APEN Reporting (Colorado Regulation No. 3, Part A, Section II)

The emission limits for Colorado Construction Permit 91WE766 were chosen at maximum VOC emission levels the landfill could emit to eliminate the necessity to modify the construction permit during the life of the landfill. The estimated maximum emissions were determined with EPA's Landfill Air Emissions Estimation Model Version 1.0 using recorded data of mass refuse placed in the landfill for July 1996 through the first half of 1999 and assuming that waste acceptance will occur at the annual limit from 2000 until landfill closure in the year 2027.

NSPS Subpart WWW requires the source to recalculate the NMOC emission rate annually subsequent to the initial NMOC emission rate report. The initial NMOC emission rate report was submitted by the source on June 4, 1996. When the recalculated emission rate exceeds 50 Mg per year, as calculated per NSPS Subpart WWW requirements, the source is required to install a collection and control system for landfill gases within 30 months.

The due date of the first semi-annual monitoring report required by this operating permit will be more than 180 days after the initial approval construction permit was issued and/or the equipment commenced operation. Therefore, the Division considers that the Responsible Official certification submitted with that report will serve as the self-certification for Colorado Construction Permit 91WE766 and the appropriate provisions of the construction permit have been directly incorporated into this operating permit.

2. Emission Factors

The annual emissions from the landfill are determined with the Landfill Air Emissions Estimation Model. Therefore, there are no emission factors associated with this emission unit. The acceptable input values into the model are described in the next paragraph.

Annual VOC emissions rates for the years 1996 through 2042 were estimated with EPA's Landfill Air Emissions Estimation Model Version 1.0. Inputs into the model include the methane generation potential ($L_o = 100 \, \text{m}^3$ per Mg), methane generation rate constant (k = 0.02 per yr), NMOC concentration as hexane ($C_{\text{NMOC}} = 595 \, \text{ppmv}$), and cumulative mass of refuse in the landfill for each year that the landfill was or will be open. Recorded data for past and present years of refuse in the landfill were used. The estimated mass of refuse in the landfill for future years was determined by adding the maximum yearly waste acceptance rate to the previous year's cumulative refuse in the landfill. The estimated date of landfill closure is 2027.

The values of the parameters (L_o , k, and C_{NMOC}) used in the Landfill Model, as described above, were chosen to represent the conditions at the landfill. The use of site-specific values for L_o , k, and C_{NMOC} is allowed by the Division. However, it should be noted that these same parameters may not be used to determine compliance with NSPS Subpart WWW requirements; the source must use the acceptable values and calculation methods described in 40 CFR § 60.754.

3. Monitoring Plan

Waste acceptance shall be recorded monthly. A new rolling twelve month total of waste acceptance will be determined each month. The rolling twelve month total shall be used to determine compliance with the annual limitation. In the absence of credible evidence to the contrary, compliance with emissions limitations will be presumed if the rolling twelve month total waste acceptance rate is at or below the waste acceptance rate limitations.

A revised APEN must be submitted to the Division as required by Colorado Regulation No. 3, Part A, Section II. C. Emissions will be estimated with EPA's Landfill Air Emissions Estimation Model Version 1.0 or higher using acceptable input values that were discussed above.

NSPS Subpart WWW requires the source to prepare and submit a NMOC emission rate report according to Federal NSPS 40 CFR 60.752, 60.754, 60.757, and 60.758.

The source is required to certify annually that the landfill operated in compliance with the Odor Regulation.

4. Compliance Status

A current APEN reporting 1999 emissions for this landfill is on file with the Division. During the latest inspection of the facility several deficiencies were found with respect to recordkeeping and reporting. The source has modified its recordkeeping methods and is expected to be in compliance with all applicable requirements at the time of the next inspection and by the issuance of the Operating Permit.

IV. Insignificant Activities

- The on-site Materials Handling Facility is used as a chemical storage area for any hazardous wastes which are removed and collected from the municipal solid waste stream. Household hazardous wastes are stored in closed containers, which are not opened. Household hazardous wastes removed from the municipal solid waste stream are an insignificant source overall, as defined by the less than 50 lbs/year State limit.
- Miscellaneous landscaping devices.
- Three separate buildings heated with propane. Each building has a small tank (approx. 1000 gallons or less).
- Lubricating oil storage for site operations tank size is 700 gallons.
- Diesel fuel storage for site operations tank sizes are 7,000 and 3,000 gallons.
- Portable emergency generator.
- Landfill gas emissions of some HAPs below the deminimus levels.

V. Short Term Limits Removed

None.

VI. Alternative Operating Scenarios

There were no alternative operating scenarios requested.

VII. Permit Shield

Emission Unit Number	Applicable Requirement	Justification
Facility	Colorado Regulation No. 7 (Except Section V)	The majority of this regulation applies to ozone non- attainment areas only. The source does not perform any activities that would be regulated under the sections that apply state-wide.
Facility	Colorado Regulation No. 8, All Sections*	There are currently no MACT standards applicable to municipal waste landfills.

^{*}It should be noted that there is currently a landfill MACT standard being developed by EPA. This new regulation may apply to this facility and require the permit to be reopened at a future date.

VIII. Accidental Release Program - 112(r)

The source is not subject to the provisions of Section 112(r) of the Clean Air Act.